

**Claims**

- 1           1.       A waveguide adaptor assembly for coupling a waveguide to a radio, antenna,  
2       waveguide or other standard flange interface, comprising:  
3           an adaptor having a waveguide side adapted to be connected to a waveguide and  
4       an opposed flange side having a predetermined flange coupling interface, and  
5           a flange having a flange interface side adapted to mate with a particular standard  
6       flange interface, and an opposed adaptor side configured to mate with said predetermined  
7       flange coupling interface on said adaptor.
- 1           2.       The waveguide adaptor assembly of Claim 1 wherein said flange is selected  
2       from a library of flanges adapted for different standard flange interfaces.
- 1           3.       The waveguide adaptor assembly of Claim 1 wherein said adaptor is  
2       fastener-connected to said flange.
- 1           4.       The waveguide adaptor assembly of Claim 1 wherein said adaptor is soldered  
2       to said waveguide.

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1           5.     The waveguide adaptor assembly of Claim 1 wherein said adaptor is  
2 fastener-connected to said flange and soldered to said waveguide.

1           6.     The waveguide adaptor assembly of Claim 1 wherein said adaptor has on  
2 said flange side a central opening surrounded by a recess adapted to receive a gasket.

1           7.     The waveguide adaptor assembly of Claim 2 wherein said flanges in said  
2 library of flanges have on said adaptor side a common provision configured to mate with  
3 said predetermined flange coupling interface of said adaptor.

1           8.     The waveguide adaptor assembly of Claim 7 wherein said provision includes  
2 a raised portion.

1           9.     A waveguide adaptor useful for coupling a waveguide to a radio, antenna,  
2 waveguide or other standard flange interface, said adaptor having a waveguide side adapted  
3 to be connected to a waveguide and an opposed flange side having a predetermined flange  
4 coupling interface adapted to be connected to a flange selected from a library of flanges  
5 adapted for different standard flange interfaces.

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1           10.     The waveguide adaptor of Claim 9 wherein said adaptor is adapted to be  
2     fastener-connected to the selected flange.

1           11.     The waveguide adaptor of Claim 9 wherein said adaptor is soldered to said  
2     waveguide.

1           12.     The waveguide adaptor of Claim 9 wherein said adaptor is adapted to be  
2     fastener connected to said selected flange and is soldered to said waveguide.

1           13.     The waveguide adaptor of Claim 9 wherein said adaptor has on said flange  
2     side a central opening surrounded by a recess adapted to receive a gasket.

1           14.     For use in a waveguide adaptor assembly for coupling a waveguide to a  
2     radio, antenna, waveguide or other standard flange interface, a library of flanges, each  
3     having a flange interface side adapted to make with a different standard flange interface, and  
4     an opposed side configured to mate with an adaptor connected to a waveguide.

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1           15.     The library of flanges of Claim 14 wherein each of said flanges in said library  
2     of flanges has on said opposed side a provision common to all flanges in said library which  
3     is configured to mate with said adaptor.

1           16.     The library of flanges of Claim 15 wherein said provision includes a raised  
2     portion.

1           17.     The combination comprising:  
2             a radio, antenna, waveguide or other structure having a standard flange interface;  
3     and  
4             a waveguide adaptor assembly for coupling a waveguide to said standard flange  
5     interface, comprising:  
6                 an adaptor having a waveguide side adapted to be connected to a waveguide  
7     and an opposed flange side having a predetermined flange coupling interface; and  
8                 a flange having a flange interface side adapted to mate with a particular  
9     standard flange interface, and an opposed adaptor side configured to mate with said  
10    predetermined flange coupling interface on said adaptor.

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1           18.     The combination of Claim 17 wherein said flange is selected from a library  
2     of flanges of adapted for different standard flange interfaces.

1           19.     The combination of Claim 17 wherein said adaptor is fastener-connected to  
2     said flange.

1           20.     The combination of Claim 17 wherein said adaptor is soldered to said  
2     waveguide.

1           21.     The combination of Claim 17 wherein said adaptor is fastener-connected to  
2     said flange and soldered to said waveguide.

1           22.     The combination of Claim 17 wherein said adaptor has on said flange side  
2     a central opening surrounded by a recess adapted to receive a gasket.

1           23.     The combination of Claim 18 wherein said flanges in said library of flanges  
2     have on said adaptor side a common provision configured to mate with said predetermined  
3     flange coupling interface of said adaptor.

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1           24.    The combination of Claim 23 wherein said provision includes a raised  
2   portion.

1           25.    A system for coupling one of a plurality of waveguide flanges to a  
2   waveguide, wherein said waveguide flanges have a generally common internal mating  
3   configuration, said system comprising:

4           at least one flange adaptor having inner and outer surfaces and wherein said outer  
5   surface is adapted to engage said generally common internal mating configuration of said  
6   waveguide flanges and said inner surface is adapted for secured mounting to said  
7   waveguide;

8           at least one clamping member adapted for fastening to select ones of said waveguide  
9   flanges; and

10          at least one fastener for securing said at least one flange adaptor between said at  
11   least one clamping member and said select ones of said waveguide flanges such that said  
12   waveguide and said at least one flange adaptor mounted thereto may be coupled to select  
13   ones of said waveguide flanges for use therewith.

1           26.    The system as set forth in Claim 25, wherein said waveguide is generally  
2   rectangular in cross sectional configuration.

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1           27.     The system as set forth in Claim 26, wherein said one of a plurality of  
2     waveguide flanges comprises a generally rectangular waveguide flange adapted for  
3     mounting to said generally rectangular waveguide and said at least one flange adaptor  
4     includes a generally rectangular passageway formed therethrough and adapted for axial  
5     alignment with, and mating engagement of, said generally rectangular waveguide.

1           28     The system as set forth in Claim 26, wherein said one of a plurality of  
2     waveguide flanges comprises a waveguide flange that is generally round in shape, having  
3     a generally rectangular passageway formed therethrough adapted for axial alignment with  
4     and mating engagement of said generally rectangular waveguide.

1           29.     The system as set forth in Claim 26, wherein said outer surface of said at  
2     least one flange adaptor includes a generally rectangular mating flange formed peripherally  
3     therearound with a generally rectangular passageway formed therethrough and adapted for  
4     axial alignment with, and mating engagement, of said rectangular waveguide.

1           30.     The system as set forth in Claim 26, wherein said inner surface of said at  
2     least one flange adaptor comprises a generally rectangular sleeve adapted for receiving said

3 one of a plurality of waveguide flanges therein, said sleeve having a shoulder formed  
4 thereacross for the abutting engagement of an end of said waveguide thereagainst.

1 31. The system as set forth in Claim 25, wherein said one of a plurality of  
2 waveguide flanges is constructed with a plurality of apertures formed therein adapted for  
3 the receipt of threaded flange fasteners therethrough for the coupling of said one of a  
4 plurality of waveguide flanges to a mating surface such that the waveguide is coupled  
5 thereto.

1 32. The system as set forth in Claim 25, wherein said inner surface of said at  
2 least one flange adaptor comprises a waveguide mounting region adapted for receiving an  
3 end of said waveguide therein for the secured mounting thereto.

1 33. The system as set forth in Claim 32, wherein said waveguide is generally  
2 rectangular in cross sectional configuration and wherein said at least one flange adaptor is  
3 constructed with a generally rectangular passageway formed therethrough for axial  
4 alignment with and secured mounting to said generally rectangular waveguide.



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1           34.     The system as set forth in Claim 33, wherein said rectangular waveguide is  
2     secured to said waveguide mounting region of said at least one flange adaptor with solder.

1           35.     The system as set forth in Claim 25, wherein said outer surface of said at  
2     least one flange adaptor includes a groove adapted for the receipt of a gasket therein for  
3     providing sealing engagement with said one of a plurality of waveguide flanges secured  
4     thereto.

1           36.     The system as set forth in Claim 25, wherein said at least one flange adaptor  
2     includes at least one aperture therethrough wherein said at least one fastener comprises a  
3     threaded plate fastener extending through said at least one aperture into said one of a  
4     plurality of waveguide flanges.

1           37.     A flange adaptor assembly for coupling one of a plurality of waveguide  
2     flanges to a waveguide, wherein said waveguide flanges have a generally common internal  
3     mating configuration, said flange adaptor assembly comprising:

4           a flange adaptor having inner and outer surfaces and wherein said outer surface is  
5     adapted to engage said generally common internal mating configuration of said waveguide  
6     flanges and said inner surface is adapted for secured mounting to said waveguide; and

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7 a clamp for securing said at least one of a plurality of waveguide flanges to said  
8 outer surface of said flange adaptor such that said waveguide and said flange adaptor  
9 mounted thereto may be coupled to said select ones of said waveguide flanges for use  
10 therewith.

1 38. The assembly as set forth in Claim 37, wherein said clamp includes at least  
2 one clamping member for engaging said flange adaptor and at least one fastener for securing  
3 said at least one flange adaptor between said at least one clamping member and said select  
4 ones of said waveguide flanges.

1 39. The assembly as set forth in Claim 37, wherein said waveguide is generally  
2 rectangular in cross sectional configuration.

1 40. The assembly as set forth in Claim 38, wherein said one of a plurality of  
2 waveguide flanges comprises a generally rectangular waveguide flange adapted for  
3 mounting to said generally rectangular waveguide and said at least one flange adaptor  
4 includes a generally rectangular passageway formed therethrough and adapted for axial  
5 alignment with and mating engagement of said generally rectangular waveguide.

1           41.     The assembly as set forth in Claim 39, wherein said one of a plurality of  
2     waveguide flanges comprises a waveguide flange that is generally round in shape, having  
3     a generally rectangular passageway formed therethrough adapted for axial alignment with  
4     and mating engagement of said generally rectangular waveguide.

1           42.     The assembly as set forth in Claim 39, wherein said outer surface of said at  
2     least one flange adaptor includes a generally rectangular mating flange formed peripherally  
3     therearound with a generally rectangular passageway formed therethrough and adapted for  
4     axial alignment with and mating engagement of said rectangular waveguide.

1           43.     The assembly as set forth in Claim 39, wherein said inner surface of said at  
2     least one flange adaptor comprises a generally rectangular sleeve adapted for receiving said  
3     one of a plurality of waveguide flanges therein, said sleeve having a shoulder formed  
4     thereacross for the abutting engagement of an end of said waveguide thereagainst.

1           44.     The assembly as set forth in Claim 37, wherein said one of a plurality of  
2     waveguide flanges is constructed with a plurality of apertures formed therein adapted for  
3     the receipt of threaded flange fasteners therethrough for the coupling of said one of a

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4 plurality of waveguide flanges to a mating surface such that the waveguide is coupled  
5 thereto.

1 45. The assembly as set forth in Claim 44, wherein said at least one flange  
2 adaptor includes at least one aperture therethrough wherein said at least one fastener  
3 comprises a threaded plate fastener extending through said at least one aperture into said  
4 one of a plurality of waveguide flanges.

1 46. The assembly as set forth in Claim 37, wherein said inner surface of said at  
2 least one flange adaptor comprises a waveguide mounting region adapted for receiving an  
3 end of said waveguide therein for the secured mounting thereto.

1 47. The assembly as set forth in Claim 46, wherein said waveguide is generally  
2 rectangular in cross sectional configuration and wherein said flange adaptor is constructed  
3 with a generally rectangular passageway formed therethrough for axial alignment with and  
4 secured mounting to said generally rectangular waveguide.

1 48. The assembly as set forth in Claim 47, wherein said rectangular waveguide  
2 is secured in said waveguide mounting region of said flange adaptor with solder.

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1           49.     The assembly as set forth in Claim 37, wherein said outer surface of said at  
2     least one flange adaptor includes a groove adapted for the receipt of a gasket therein for  
3     providing sealing engagement with said one of a plurality of waveguide flanges secured  
4     thereto.

1           50.     The assembly as set forth in Claim 37, wherein said at least one flange  
2     adaptor includes at least one aperture therethrough wherein said at least one fastener  
3     comprises a threaded plate fastener extending through said at least one aperture into said  
4     one of a plurality of waveguide flanges.

1           51.     A method for coupling one of a plurality of waveguide flanges to a  
2     waveguide, wherein said waveguide flanges have a generally common internal mating  
3     configuration, said method comprising the steps of:

4           forming a flange adaptor having inner and outer surfaces and wherein said outer  
5     surface is adapted to engage said generally common internal mating configuration of said  
6     waveguide flanges and said inner surface is adapted for secured mounting to a said  
7     waveguide; and

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8 clamping said at least one of a plurality of waveguide flanges to said outer surface  
9 of said flange adaptor such that said waveguide and said flange adaptor mounted thereto  
10 may be coupled to said select ones of said waveguide flanges for use therewith.

1 52. The method as set forth in Claim 51, wherein said waveguide is generally  
2 rectangular in cross sectional configuration and said step of forming said flange adaptor  
3 includes forming said inner surface in a generally rectangular configuration.

1 53. The method as set forth in Claim 52 and further including the step of  
2 providing said one of a plurality of waveguide flanges in a generally rectangular  
3 configuration adapted for mounting to said generally rectangular waveguide and the step  
4 of forming said at least one flange adaptor with a generally rectangular passageway  
5 therethrough and axially aligning said passageway with said generally rectangular waveguide  
6 for the securement thereto.

1 54. The method as set forth in Claim 53, wherein said securement of said axially  
2 aligned passageway to said generally rectangular waveguide includes the step of flowing  
3 molten solder therebetween.

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